Palm Software for OBDScan

The file OBD60.prc is the latest Palm OS application code for OBDScan if your Palm OS version is 3.5 or higher. The file OBD3_5.prc is the latest Palm OS application code for OBDScan if your Palm OS version is between 3.1 and 3.5. All you need to do is double click the correct .prc icon for your Palm device and your Palm HotSync software will schedule it for download. Then connect the Palm to the computer and perform HotSync as usual. We have also included two versions of the Palm 5.X application in case you should encounter difficulties with the newest software. Some Dodge Diesel trucks will only operate with the 5.1 version due to ECU address conflicts. If your OBDScan has a version number less than 2.11 (purchased before 8-30-01) then freeze frame data will not be available.

LATE UPDATE: version 7.0 has added data logging capability.

PDA Requirements

The OBDScan Scan Tool software supports the following Palm™ handhelds
IMPORTANT: All devices must be running PALM OS® 3.1 or higher
Palm III, IIIc, IIIx, IIIxe, V, Vx, VII, VIIx, M100, M105, M125, M130, M500, M505, M515, i705,Tungsten, Color Zire

Handspring Visor Deluxe, Prism, Pro, Platinum, and Neo

Sony CLIE' PEG-N610C, PEG-N710C, PEG-N760C, PEG-S300, PEG-S320, PEG-S360, PEG-NR70, PEG-NR70V, PEG-SJ20,
PEG-SJ30, PEG-SL10, PEG-T415, PEG-T615C, PEG-T665, PEG-T665C

What version of Palm OS® my PDA is running?
To determine what version of Palm OS® your device is running do the following.
1. Tap the Applications (Home) icon on in the lower left corner of your Palm™ handheld.
2. Tap the Menus icon on in the lower left corner of your Palm™ handheld.
3. Tap Info… in the App menu dropdown to open the Info Screen.
4. Tap Version at the bottom of the screen. The Palm OS® software version is displayed at the top of the screen.

Remember that In addition to a Palm PDA, you must have a serial (9-pin) HotSync® or Modem cable to connect the PDA to the OBDScan Protocol Converter box. If using a HotSync cable then a M-M Null Modem adapter is required also.

Software Installation

Use the following instructions to install the OBDScan Palm software on your Palm™ handheld. You must have the Palm Desktop software installed on the computer prior to installing the OBDScan software. The Palm Desktop program comes with the Palm, Handspring or Sony PDA you purchased.

1. Place the OBDScan software installation CD in your desktop PC CD-ROM drive
2. Locate the Palm folder on the CD and open it
3. Double click OBD60. This will bring up the Palm Desktop program.
4. The OBD60 file will be in a window. Click the OBD60 and then the Done button. The OBD60 is now ready for Hotsync to the Palm device.
5. Perform a Hotsync on your PDA, the OBD60 is now installed.

Setup

1.0 What Do You Need

OBDScan Protocol Converter – Black interface box with a DB9M pin connector on one end and a DB9F pin connector on the other.

CABLE-OBD II – A cable with an OBD II connector on one end and a DB9 on the other.

Modem or HotSync Cable – Cable from the PDA to the Protocol Converter. The HotSync cable, if used, required a M-M Null Modem adapter also.

The PDA of your choice

2.0 Step-By-Step Instructions For Setting Up The Scan Tool

The Protocol Converter must be connected between the vehicle and PDA device to operate. The following sections explain how to make the proper connections.

2.1 Connecting the OBDScan to a Palm Device

Connect the Palm™ handheld's serial HotSync® cable or Modem to the HotSync® port on the Palm™ handheld. Connect the other end to the 9-pin RS-232 connector on the Protocol Converter. If using the HotSync cable to connect the M-M Null Modem to the RS-232 connector of the Protocol Converter and connect the Hotsync cable to the other end of the M-M Null Modem adapter.

2.2 Connecting the OBDScan Protocol Converter to a Vehicle

To connect the Protocol Converter to the vehicle, you must first locate the vehicle's diagnostic connector. The diagnostic connector is a 16-pin connector and is referred to as the Data Link Connector (DLC). This connector supplies power to the Protocol Converter.
After you have located the vehicle's DLC, connect one end of the OBD II Cable to the vehicles diagnostic connector. Connect the other end of the cable to the 9-pin "OBD II " connector on the Protocol Converter.
Where is the vehicle's DLC connector? On most vehicles the OBD-II connector is located under the driver's side dashboard. It may be recessed behind a panel or ashtray (as in some Honda's) in some vehicles.

2.3 Using the OBDScan Scan Tool Software to Scan Vehicle Data

1. **After following the steps above, start the OBDScan Software.**

2. **Switch Vehicle Ignition to ON**

3. **At this time the software will connect to the vehicle and begin the communication process.** The status of this connection is shown by the rotating bar in the upper left corner of the screen when the software successfully communicates with the vehicle ECU.
If the tool did not connect, check all cable connections, make sure the ignition is ON. Check that the Palm™ handheld device battery power is not low. Once the software is scanning data, you can view the data parameters in grid, graph or meter format, look at DTCs,
I/M monitors, and Turn off the Check Engine Light.

3. OBD-II Background

3.1 OBD II

The EPA required all vehicle manufacturers to meet OBD II standards by the 1996 model year. In order to meet this standard, the automobile's on-board computer must monitor and perform diagnostic tests on vehicle emissions to ensure that the vehicle is operating at an acceptable (legal) emission level. All 1996 and newer passenger vehicles sold in the USA are OBD II compliant. This applies for the most part to Canada with a few exceptions. All OBD II vehicles have the same 16 pin diagnostic connector or DLC for

commonality. There are some 1994 and 1995 vehicles have this connector, however, this does not mean that the vehicle is OBD II compliant.

3.2 Vehicle Electronic Control Unit (ECU)

Vehicle ECU's control engines, transmissions, air bags, antilock brakes, and in some cases suspension control. The ECU will use a variety of sensors, such as the throttle position sensor, mass airflow sensor and oxygen sensor to provide information to the on-board computer regarding the vehicle's engine operating conditions. ECU's generally have a self test capability and error monitoring software. They monitor many or all of the vehicle's sensors and controlled devices for proper operation. When the ECU software detects a condition that would cause the emission to exceed the limit or result in poor performance or a safety hazard, a diagnostic trouble code or DTC is set. This malfunction is stored into the on-board computer's memory as a DTC number that is related to a specific sensor or other problem. The computer can later be accessed using the OBDScan to read the code.

3.3 Malfunction Indicator Lamp (MIL)

The Malfunction Indicator Lamp (MIL) is located in the instrument panel on the dashboard and is either a red or yellow labeled lamp. The MIL is normally off and will illuminate if a system or component either fails or deteriorates to the point where the vehicle emissions could rise 1.5 times above the FTP set emissions level.

3.4 Freeze Frame Data

When the first emissions related powertrain DTC becomes stored, the PCM will capture (save) a block of current engine parameters. This list of parameters is called Freeze Frame Data and consists of a fixed list of parameters. For vehicles, which do not support all parameters, only the applicable ones are stored. When DTCs are cleared, the Freeze Frame Data is cleared from the vehicle's PCM.

3.5 Diagnostic Trouble Codes

OBD II requires that all vehicle manufacturers use a common Diagnostic Trouble Code numbering System. There is a generic DTC listing that all manufacturers must use. Since the generic listing was not specific enough, most manufacturers came up with their own DTC listing, which are called manufacturer specific codes. Both generic and manufacturer specific codes are 5 digits. The first digit is a letter, which identifies the function of the device, which has the fault. This digit can be either:

P Powertrain
B Body
C Chassis
U Network or data link code

The second digit is either a 0 or 1 and indicates whether the code is generic or manufacturer specific.
0 Generic
1 Manufacturer Specific

The third digit represents the specific vehicle system that has the fault. Listed below are the number identifiers for the powertrain system:

1 Fuel and Air Metering
2 Fuel and Air Metering (Injector Circuit Malfunctions Only)
3 Ignition System or Misfire
4 Auxiliary Emission Control
5 Vehicle Speed Control and Idle Control System
6 Computer and Auxiliary Outputs
7 Transmission
8 Transmission

The last two digits indicate the specific fault index.

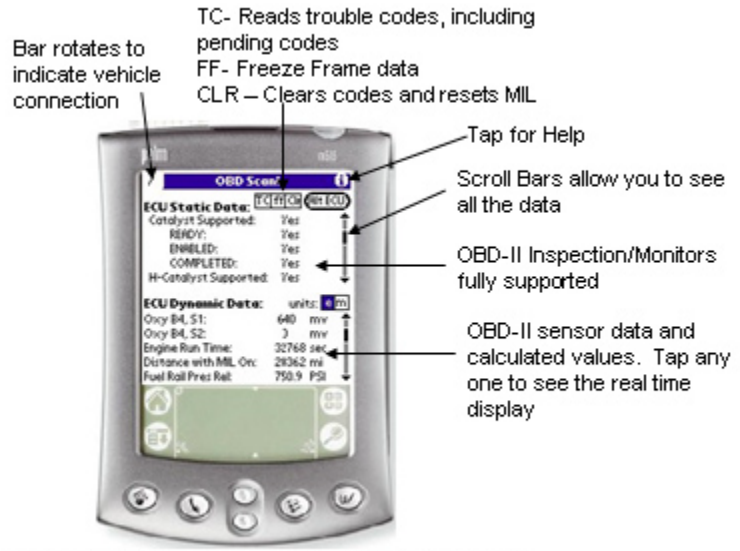
On OBD II vehicles there are two different types of DTCs: Stored and Pending. For a DTC to become Stored, certain malfunction conditions must occur. The condition(s) required to Store a code are different for every DTC and vary by vehicle manufacturer. In order for some DTCs to become Stored, a malfunction condition has to happen more than once. If the malfunction conditions are required to occur more than once, the potential malfunction is called a Pending DTC. The DTC remains Pending until the malfunction condition occurs the required number of times to make the code Stored. If the malfunction condition does not occur again after a set time the Pending DTC will be cleared.

3.6 OBD II Inspection and Maintenance (I/M) Readiness Monitors

A monitor is a piece of software in one of the vehicle's on-board computers that has the job of monitoring a specific piece of the engine. There are two types of monitors: continuous and non-continuous. A continuous monitor runs continuously
during vehicle operation. A non-continuous monitor requires enabling criteria to make it run. Some examples of enabling criteria are vehicle acceleration/deceleration to a certain speed, engine temperature and driving the vehicle at a certain speed for a period of time.
For OBD II vehicles, there is a fixed list of 11 monitors: 3 continuous and 8 non-continuous. The 11 monitors are not applicable for all vehicles. The Inspection & Maintenance screen of the software lists the availability and status of your vehicles monitors. In order to pass an emission inspection all of the supported monitors must be completed.
The Continuous Monitors are:
Misfire, Fuel System, Components
The Non-Continuous Monitors are:
Catalyst, Secondary Air System, Oxygen Sensor, Heated Catalyst, A/C System, Oxygen Sensor Heater, Evaporative Emissions System, and EGR System.

4.0 Using the Software

The startup screen for the OBDScan Palm is shown below. The OBDScan will automatically connect to the vehicle once the ignition is turned on. The bar in the upper left rotates when communication is established with the ECU.


Bar rotates to indicate vehicle connection
TC- Reads trouble codes, including pending codes
FF- Freeze Frame data
CLR – Clears codes and resets MIL
Tap for Help
Scroll Bars allow you to see all the data
OBD-II Inspection/Monitors fully supported
OBD-II sensor data and calculated values. Tap any one to see the real time display
OBD Scan
ECU Static Data:
Catalyst Supported: Yes
READY: Yes
ENABLED: Yes
COMPLETED: Yes
H-Catalyst Supported: Yes
ECU Dynamic Data:
Oxy B4, S1: 640 mv
Oxy B4, S2: 0 mv
Engine Run Time: 32768 sec
Distance with MIL On: 28362 mi
Fuel Rail Pres Rel: 750.9 PSI
OBDScan version 6.0 for Palm OS

From this screen you can access all of the OBDScan functions.

4.1 Sensor Data

You can view the vehicle parameter data updating in real time (live) graph or meter format. Parameters can be viewed in either English or Metric units. To view real time, just tap any item in the ECU Dynamic Data list and the software will take you to the Realtime Graph screen shown below. From there you can select 'Show Graph' to bring up the Realtime Graph screen. Two sensors can be displayed simultaneously in either screen. The data parameter values are plotted on the vertical axis in reference to seconds on the horizontal axis. The vertical axes of the graphs are automatically adjusted to fit the data. The current value of the data parameter is shown above each graph beside the parameter name. To change the data parameter displayed in a specific meter or graph, select on the down arrow to the left of the parameter description to open a drop down box that lists the parameters. Tap on the parameter you want to display displayed on the meter.

Realtime Meter **Realtime Graph**

The Graph is Auto-Scaling, so it will always try to expand the graph to show any changes, no matter how small. This can be confusing if you're not used to it so watch the values on the left side of the graph to see the range being displayed.

4.2 Trouble Codes

Shown is the Trouble Code window. You tap the TC box on the main page to get there.

Stored DTCs - All of the vehicle's stored DTCs are listed in this section.

Pending DTCs - All of the vehicle's pending DTCs are listed in this section.

If manufacturer specific DTCs are displayed (P1XXX), the trouble code must be looked up on the CD supplied.

Clear DTCs Button ('CLR' box on top of screen) - Tap on this box to clear (erase) the Stored and Pending DTCs, Freeze Frame Data, and Inspection and Maintenance Monitors from the ECU(s). A confirmation message is displayed to make sue that the codes are cleared inadvertently. Make sure that the vehicle's ignition is ON position and the engine is not running. Some vehicles will not clear the DTCs if the engine is running. Tap the **Yes** button to continue with the clearing process.

Freeze Frame Button ('FF' box on top of screen) - Tap on this button to display the vehicle's Freeze Frame data. The Freeze Frame Data Screen displays the vehicle's freeze frame data, if any. A description of the freeze frame parameters and the values of the parameters at the time the DTC occurred are listed.

Freeze Frame Trouble Code - The DTC that caused the freeze frame is also displayed.

What is Freeze Frame? In OBD II vehicles, when the first emissions related powertrain DTC occurs, the PCM will save a set of current engine parameters. This list of parameters is called Freeze Frame Data and consists of a fixed list of parameters. Vehicles usually do not support every parameter on the fixed list.

NOTE: When DTCs are cleared, the Freeze Frame data is also cleared.